

**UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
EUGENE DISTRICT**

**ENVIRONMENTAL ASSESSMENT NO. OR O90-EA-03-01
Nelson Way Commercial Thinning**

1.0 INTRODUCTION

The Bureau of Land Management (BLM) proposes to commercially thin approximately 125 acres of timber requiring approximately 0.5 acre of road construction in T. 17 S., R. 8 W., Section 13, Willamette Meridian. The proposed treatment area is located within the Lake Creek Watershed of the Siuslaw Resource Area, Eugene District, in Lane County, approximately 6 air miles south of Triangle Lake, Oregon. Watershed analysis was completed for the Lake Creek Watershed in June 1995 by the Eugene District BLM. Timber harvesting would occur on land in the General Forest Management Area (GFMA) portion of the Matrix land use allocation (LUA) and on Riparian Reserves as identified in the Eugene District Record of Decision and Resource Management Plan.

1.1 Management Objectives and Goals for Land within the GFMA Portion of the Matrix Land Use Allocation

Matrix land is Federal land outside of reserves and special management areas that will be available for timber harvest at varying levels. The management objectives for the Matrix LUA, as directed in the Eugene District Record of Decision and Resource Management Plan, are:

- Produce a sustainable supply of timber and other forest commodities to provide jobs and contribute to community stability.
- Provide connectivity (along with other allocations such as Riparian Reserves) between Late-Successional Reserves.
- Provide habitat for a variety of organisms associated with both late-successional and younger forests.
- Provide important ecological functions, such as dispersal of organisms, carryover of some species from one stand to the next, and maintenance of ecologically valuable structural components, such as down logs, snags, and large trees.
- Provide early-successional habitat.

1.2 Conformance

This Environmental Assessment (EA) is tiered to and in conformance with the "Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl and the Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl" (ROD/Standards and Guidelines), April 1994, and the "Eugene District Record of Decision and Resource Management Plan" (ROD/RMP), June 1995, as amended by the "Record Of Decision for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines," USDA Forest Service and USDI Bureau of Land Management, January 2001. Impacts of the Proposed Action and alternatives would not exceed the range of impacts evaluated in those Environmental Impact Statements.

1.3 Purpose of and Need for Action

This section briefly describes the underlying purpose and need to which the BLM is responding in proposing the alternatives including the proposed action.

The purpose of the proposed action is to provide forest products while maintaining or enhancing the productivity, sustainability, and diversity of the forest ecosystem. Approximately 1.8 million board feet (MMBF) of timber would be offered for sale via a timber sale contract. The need for the action is established in the RMP which directs that timber shall be harvested from Matrix lands to provide a sustainable supply of timber. Another need for this action is to accelerate the attainment of ACS objectives (RMP, p. 18). "Under the Aquatic Conservation Strategy, Riparian Reserves are used to maintain and restore riparian structures and functions of streams, confer benefits to riparian-dependent and associated species other than fish, enhance habitat conservation for organisms that are dependent on the transition zone between upslope and riparian areas, improve travel and dispersal corridors for many terrestrial animals and plants, and provide for greater connectivity of the watershed" (ROD, page B-13). Watershed analysis was completed for the Lake Creek Watershed and supported the need for silvicultural treatments within Riparian Reserves to accelerate the attainment of ACS objectives (Lake Creek Watershed Analysis, Chapter 7).

2.0 ISSUES

2.1 Issues Selected for Analysis

Issue 1: How will timber harvest and roading affect attainment of Aquatic Conservation Strategy (ACS) Objectives at the watershed scale?

The Proposed Action and alternatives incorporate the use of design features and selected Best Management Practices (BMPs) to insure the project proposal does not prevent or retard attainment of the nine ACS Objectives on a watershed or landscape scale.

Issue 2: How will timber harvest and roading affect dispersal habitat for northern spotted owls?

The project area is considered dispersal habitat for northern spotted owls. Dispersal habitat provides transient owls with roosting and/or foraging habitat while seeking their own territory. Timber harvest could affect the project area's short term ability to function as dispersal habitat.

Issue 3: How will the method of timber harvest, along with proposed mitigations, affect soil productivity?

Yarding systems affect soil productivity and compaction in different ways. Applying selected Best Management Practices (BMPs) listed in the RMP may ameliorate these impacts.

3.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

This section describes the potential actions and design features of all alternatives. Table 1 is a summary comparison of the alternative designs.

3.1 Project Design Features Common to all Action Alternatives

The following project design features would be implemented in conjunction with all alternatives. Project design features are operating procedures normally used to avoid or reduce adverse environmental impacts or are required standards and guidelines included in a timber sale contract.

1. Upland & Riparian Silvicultural Treatment - The objectives of upland thinning are to recover suppression mortality, accelerate growth of residual trees, and enhance stand development by moving these densely stocked stands toward a more open condition. Within the Riparian Reserve, the objectives of thinning are to meet the long-term objectives of the Aquatic

Conservation Strategy (ACS) and to develop large trees within the reserves more quickly than would develop naturally. Leave tree selection would favor the retention of large dominant and co-dominant conifers. Thinning would be done so that residual trees would be spaced 18 to 28 feet apart, yielding a density of approximately 70 to 105 trees per acre (tpa). On average the stand would retain a relative density of about 35% and an average stand basal area of approximately 135 square feet per acre. Canopy closure is estimated to remain about 40%.

2. In order to maintain existing water quality and to meet ACS objectives, a non-treated buffer, approximately 50 feet on each side of the streams, would be required, and no ground-based yarding would be allowed in Riparian Reserves. Cable yarding with one-end suspension would be required within the Riparian Reserves.

3. Skyline cable corridors may be needed through the stream buffers to gain the necessary suspension of logs during yarding. There would be no yarding of logs through these cable corridors within the stream buffers. Cable corridors would be kept at least 150 feet apart, where possible, to minimize impacts to reserve trees and would not exceed 12 feet in width where possible. Cable corridor trees would be felled and left parallel to the stream to the extent possible within the non-treated Riparian Reserve area and retained on site to provide coarse woody debris.

4. One-end suspension of logs would be required during cable yarding, and intermediate supports would be required where necessary to attain the required suspension. Wherever possible, yarding corridors would be limited to 12 feet in width. Directional felling and yarding away from streams would be required to provide for streambank stability and water quality.

5. Two Red Tree Vole nests (one active and one inactive) would be protected with appropriate reserves (Survey & Manage Protection Buffers) as required by current management recommendations.

6. Twenty Oregon Megomphix sites (pre-October, 1999) would be protected according to current management recommendations for Survey and Manage mollusks (Protection Buffers).

7. In order to slow the spread of noxious weeds, all yarding and road construction equipment including excavators would be cleaned prior to arrival on BLM Land.

8. For the purpose of long-term productivity and maintenance of biological diversity, retain to the extent possible all down material of advanced decay (Decay Class 3, 4, or 5) for coarse woody debris (CWD).

9. To provide habitat for cavity dependent wildlife and to protect the future source of down logs, reserve from cutting all snags not posing a safety hazard. Use directional felling and yarding to protect residual green trees and snags consistent with State safety practices. Retain snags felled as danger trees as CWD.

10. Suspend harvest activities during sap flow season (April 15- June 15) to limit bark/cambium damage to residual trees.

11. Retain Pacific yew, western redcedar, and hardwoods to the extent possible to maintain diversity.

12. Leave in place unmerchantable tree tops and limbs to contribute to soil productivity. After logging, clear slash from within 25 feet of the mainline roads for fire hazard reduction. Slash piles on mainline roads would be covered and burned. Restrict off-road site-preparation machinery to the dry season.

13. Directional felling away from powerlines would be required. Thinning would occur up to the powerline right-of-way as requested by the utility company to minimize future blowdown. Trees

leaning into the powerline right-of-way would be cut. The power company would be notified prior to beginning operations.

14. Five “plus” trees (genetically select trees) would be reserved.

15. During yarding, log lengths would be limited to a maximum of 40 feet to protect residual trees.

3.2 Proposed Action - Commercial Thinning in Upland and Riparian Reserves – Cable Yarding

This alternative would commercially thin approximately 125 acres of timber requiring 0.5 acres of road construction (see EA Map). This alternative includes both upland thinning (approximately 120 acres) and Riparian Reserve thinning (approximately 5 acres).

Roads

Alternative 1 would use County Roads No. 3670 and 4670, an existing State road (17-8-13.2) to be renovated, and BLM Roads No. 17-8-13 and 17-8-13.1. Approximately 1200 feet of temporary dirt spur road would be constructed to allow further access to the project area (Spurs A & C), along with up to 300 feet of optional temporary spur roads constructed where needed with prior approval by the BLM. Use of the State road would include a truck turn-around on State land. Spurs A and C would be built during the dry season and would be designed to 14-foot wide subgrades with no ditch. Drain dips and rolling dips would be used where possible to provide for drainage. No new stream crossings would occur. Summer logging and hauling would be required on Spurs A and C, and they would be subsoiled upon completion of logging.

Yarding

Cable yarding would be done to Spurs A and C, existing road grades, and the optional temporary spur roads. All yarding would be to designated or approved landings.

Design features common to all alternatives would apply.

3.3 Alternative 1 - Commercial Thinning in Upland and Riparian Reserves - No New Road Construction

Approximately 80 acres would be commercially thinned. This alternative includes upland and Riparian Reserve thinning.

Roads

Road access under this alternative differs from that of the Proposed Action. There would be no new road construction. The same existing roads would be used, but Spurs A and C and the temporary optional spurs would not be constructed.

Upland

Upland thinning objectives and prescription would not differ from the Proposed Action. However, approximately 44 upland acres would not be harvested due to a lack of road access.

Riparian Reserves

Riparian Reserve thinning objectives and prescription would not differ from the Proposed Action. However, approximately 1 Riparian Reserve acre would not be treated due to a lack of road access.

Yarding

Cable yarding would be required from existing roads only. All other yarding design features would be the same as Alternative 1.

Other Design Features

Design features common to all alternatives would apply.

3.4 Alternative 2 - Commercial Thinning in Upland & Riparian Reserves - Cable & Ground-based Yarding with additional Slope/Soil Limits

Alternative 2 would be similar to the Proposed Action in that it would commercially thin approximately 125 acres of timber, including both upland thinning (approximately 120 acres) and Riparian Reserve thinning (approximately 5 acres). Roads and Yarding would differ from the Proposed Action. This alternative would require approximately 3/4 acre of road construction.

Roads

Alternative 2 would be similar to the Proposed Action except that instead of Spur A; Spur B would be constructed. Spur B would be approximately 1500 feet of temporary dirt road. Spurs B and C together would approximate 1700 feet of new temporary road construction. Optional temporary spur roads of up to 300 feet would be allowed. Summer logging and hauling would be required on Spurs B and C, and they would be subsoiled upon completion of logging. All other Roads features would be the same as the Proposed Action.

Yarding

All cable yarding features would be the same as the Proposed Action. Ground-based yarding would be allowed given certain limitations below.

Ground Based Yarding

All skid trails would be predesignated and approved by an authorized officer, would be limited to slopes less than 35%, and would occupy less than 10% of the area logged with ground-based equipment. In addition, uphill ground-based yarding would be limited to slopes of 20% or less. To plan to have insignificant growth loss effect (1% or less) from compaction (2% or less) ground-based logging would be restricted to periods of less than 25% soil moisture in the upper 6 inches of the soil. There would be no ground-based yarding on Honeygrove or Cumley soils. No ground-based yarding would occur within Riparian Reserves. Logs would be skidded to designated or approved landings. To minimize soil compaction and maintain long-term soil productivity, upon completion of logging operations, skid trails/landings used for harvesting would be evaluated for waterbarring, subsoiling with a self-drafting winged subsoiler, or other treatment (excavator).

Other Design Features

Design features common to all alternatives would apply.

3.5 Alternative 3 - No Action

This stand would be allowed to grow along its current growth trajectory. With this alternative, no timber would be harvested from these stands and no roads would be constructed.

3.6 Other Alternatives Considered

An additional alternative was considered using a combination of cable and ground-based yarding, similar to Alternative 2, but without soils restrictions or additional slope limitations. This alternative was dropped from further consideration in this analysis.

3.7 Comparison of Alternatives

Table 1: Comparison of Alternative Designs

Design Features	Proposed Action		Alternative 1		Alternative 2		Alternative 3
Matrix and Riparian Reserve Silviculture Treatment	Approximately 125 acres thinned to a range of 70 to 105 TPA		Approximately 80 acres thinned to a range of 70 to 105 TPA		Same as Proposed Action		No thinning
	Volume (MMBF)	Acres	Volume (MMBF)	Acres	Volume (MMBF)	Acres	
Matrix	1.71	120	1.10	76	1.71	120	0
Riparian Reserve	0.07	5	0.06	4	0.07	5	0
Total	1.78	125	1.16	80	1.78	125	0
Road Construction and Decommissioning	1500 feet of dirt road		No road construction		2000 feet of dirt road		No road construction
Yarding	Cable only		Cable only		Cable and ground-based, BMPs plus no uphill g.b. yarding on slopes >20%, Honeygrove or Cumley soils		None

4.0 AFFECTED ENVIRONMENT

This section describes the relevant resource components of the existing environment.

4.1 Vegetation

Lake Creek Watershed

The Lake Creek Watershed is located in Lane and Benton Counties, northwest of the city of Eugene. The watershed contains approximately 68,771 acres. BLM manages approximately 46.3% of the watershed. Approximately 15,994 acres (23.3%) of the Lake Creek Watershed is owned by forest industry companies, and an additional 12,824 acres (18.6%) are owned by other private owners. This private ownership totals approximately 28,819 acres or approximately 42% of the watershed. The State of Oregon administers 8,090 acres (11.8%) of the watershed. Intensive timber management or agriculture is practiced on much of this ownership and is likely to continue (Lake Creek Watershed Analysis, 1995).

Approximately 22 percent of the forested BLM administered lands within the Lake Creek Watershed are in the 0-30 year age classes. Approximately 59 percent are in the 40 to 70 year age classes, and approximately 19 percent are in the late successional or 80 year and older age classes (Based on Forest Operations Inventory (FOI) stand data 2002).

Stand Description

The stands within the treatment area are 55 to 57 year-old even-aged stands dominated by Douglas-fir. Minor components include western hemlock, western red cedar, and hardwoods. The stands were established between 1945 and 1947 following logging.

4.2 Botanical Resources

Special Status and Survey & Manage Species

Extensive surveys in the project area were conducted for federally listed Threatened, Endangered, BLM Special Status, and Survey and Manage plant and fungal species. No federally listed Threatened or Endangered plant species were located during botanical surveys. No Survey and Manage species were found which require management at this time.

Noxious Weeds and Non-Native Plant Species

Scotch broom is present.

4.3 Geology and Soils

Geology

This project area is geologically mapped within the Flourney/Tyee Formation that consists of massive and rhythmically bedded feldspathic and micaceous sandstone and subordinate siltstone. Each bed is graded and ranges from coarse sandstone at the base to fine sandstone and siltstone above (Walker and Macleod, 1991). Field reconnaissance and air photo interpretation indicate that no large landslides have occurred during recent historical time in the project area.

Soils

Predominant soils found in this project area include Cumley (13 acres), Honeygrove (23 acres) and Peavine (27 acres) (U.S.D.A. 1987) (see Alternative 2 map). Approximate estimates of acreages of soils were conducted in-house using a modified acreage grid. These clay soils are highly erodible, compact easily, and when disturbed, tend to stay in suspension longer. Displacement of soil and organic matter reduces the fertility of the soil. The soils are moderately deep and have a high Site Index that correlates to a high amount of on-site nitrogen and potential site productivity. All three soils are susceptible to compaction. With a reduction in pore space in the soil, air and water availability for plants decreases. Soil porosity is an essential component of site productivity, instrumental for water infiltration, water storage, and gas exchange. Soils with good porosity have favorable conditions for root growth, water movement, nutrient uptake by roots, and mycorrhizal growth. Because compaction in Western Oregon from ground-based harvesting has longevity of at least one rotation, it is critical to site productivity that mitigation measures meet RMP standards. In soil with 40% clay, Perry (1964) estimated that it would take 40 years for the soil to naturally recover to the density of undisturbed soil. Wert & Thomas (1981) showed that natural recovery from soil compaction of Preacher soil (20-35% clay content) had not occurred 32 years after initial logging. Mitigation through careful preplanning and restrictions can address many concerns of the soils.

Peavine soils are moderately deep (30-40 inches). The surface layer is a silty clay loam, and the subsoil is silty clay with soil horizons containing 30-60% clay. Unstable areas associated with Peavine soil are in steep, concave slopes at the heads of drainages, the edges of benches, or areas where ground water accumulates. Common slope failure is of the slump and earthflow type. Rock fragment in the soil profile is typically less than 20%. Permeability is moderately slow due to the heavy textures and absence of coarse fragments. These soils are susceptible to compaction. Physical and chemical data of the Peavine soil indicate that at 15 Bar (wilting conditions), between zero and four inches, the soil moisture content is 22.3% (Huddleston 1982). Personal observations of compaction from ground based logging in the Eugene District on Peavine soil (up to 60% clay) indicated that soils had not recovered naturally after 60 years and should be monitored to determine future equipment limitations on Peavine soil. Monitoring of soil moisture conditions before operations begin is needed to ensure compliance with the RMP.

Ground-based logging could occur on Peavine soil under Alternative 2, and amelioration of any resulting compaction is problematic. The clay content of Peavine soil ranges between 30% and 40% in the upper 8 inches and between 45% and 60% between 8 to 38 inches. Clay soils do not respond well to tillage by implements that have been tested in studies (Hogervorst, 1994;

Froehlich et al, 1980). During lab conditions, Peavine soils can reach 22% soil moisture and meet site prep standards for tilling; however, variable summertime conditions, aspect and canopy cover may prevent soil moistures from reaching levels where mitigation can occur to meet Eugene District standards.

Honeygrove soils are deep (40-60 inches). The surface layer is a silty clay loam, and the subsoil is up to 60% clay. There may be up to 15% rock fragments present. Permeability is moderately slow. These soils are susceptible to compaction. Physical and chemical data of the Honeygrove soil indicate that at 15 Bar (wilting conditions), between 0 and 8.1 inches, the soil moisture content is 37.1% (Huddleston 1982). Honeygrove has been shown to remain above 45% in soil moisture during the dry season (Sidle and Drlica, 1981).

Cumley soils are deep (47-60 inches), high in clay content, and have a saturated subsoil. The soil is susceptible to compaction. Root growth of trees tends to be horizontal rather than vertical because of the saturated subsoil. Effective rooting depth is limited by a high water table November to April. This soil has moderately slow permeability and is subject to slumping in steeper road cuts. Physical data of the Cumley soil taken by Rudy Weidenbeck, Soil Scientist, Eugene BLM, indicate that soil moisture does not drop below 40% during the dry season.

4.4 Fisheries, Aquatic, and Riparian Resources

The proposed unit is in the Lake Creek Watershed. Elevations range from 820 to 1280 feet, putting the entire unit in the rain dominated zone.

There are three streams associated with this project area. Stream 1 scour and channel formation begins approximately 150 feet outside of the proposed harvest area. Stream 2 begins approximately 150 feet west of County Road No. 3670 and flows under the powerlines. Stream 2 understory is dense salal and the overstory is mainly Douglas-fir 12-20 inches in diameter at breast height (dbh). Stream 3 is a small intermittent stream which starts within the project area approximately 400 feet from the west property line. The channel runs west for about 200 feet before going subsurface and does not reappear until it is about 75 feet from the property line. Stream 3 understory is sword fern or dense salal, with a midstory of maple and Sitka spruce and an overstory of Douglas-fir 10-20 inches dbh. Streams 1-3 are tributary to Nelson Creek.

Nelson Creek provides spawning and rearing habitat for coho and chinook salmon, steelhead, cutthroat trout, and sculpin. Streams 1-3 provide habitat for insects and other aquatic invertebrates upstream from Nelson Creek and influence water quality for fisheries located downstream.

4.5 Wildlife

Threatened and Endangered Species

Within the project area, there are no activity centers or suitable habitat for any terrestrial wildlife species listed or proposed for listing under the Endangered Species Act.

The project area qualifies as dispersal habitat for the northern spotted owl. While the nearest spotted owl activity center is located within 0.25 mile of the project area, it has not been occupied by this species since 1995. There are no records of spotted owls in the proposed harvest unit.

No suitable habitat for the marbled murrelet exists within the proposed unit; however, one old growth Douglas-fir is located adjacent to the project area on the boundary between BLM and State lands. The closest known site occupied by marbled murrelets is approximately 4.5 miles away.

Survey and Manage Species

Survey and Manage (S&M) mollusk species, previously requiring surveys, include the Oregon Megomphix (*Megomphix hemphilli*), papillose taildropper (*Prophysaon dubium*), and the blue-grey taildropper (*Prophysaon coeruleum*). After a scientific review of past survey results, these species have been removed from the S&M list in the Siuslaw Resource Area (USDA & USDI, 2001), and

no longer require pre-project surveys. Previously documented sites for both taildroppers no longer require management, while Megomphix sites discovered prior to October, 1999 require mitigation buffers. There are twenty such Megomphix sites in the vicinity of the action area and they will be protected according to current Management Recommendations for Survey and Manage mollusks.

Red tree vole surveys were conducted in 2001. Two nests (one active and one inactive) were identified within the project area; they will be protected according to current Management Recommendations for the red tree vole.

Other Special Status Species

No other special status species or unique habitats were encountered within the project area during various wildlife surveys.

4.6 Cultural Resources

A cultural resource inventory of the proposed area has not been conducted. Past pre-project cultural resource surveys conducted in conjunction with surface-disturbing actions in the Coast Range physiographic province have not resulted in the discovery of significant cultural properties.

Following the signing of the national Programmatic Agreement, the Oregon BLM and the Oregon Historic Preservation Office developed a protocol agreement recognizing the paucity of discoverable historic properties in the Coast Range. Under this protocol, pre-project cultural resource surveys will not be conducted in the Coast Range physiographic province. The Protocol Agreement does set forth procedures covering post-project cultural resource surveys which would be implemented.

4.7 Recreation and Visual Resources

The project area is within the RMP's Visual Resource Management Class IV, which allows major modifications of the existing character of the landscape. The project area is in an area of dispersed recreation activities such as hunting and driving for pleasure.

4.8 Fuels/Downed Woody Debris

The pre-harvest fuel loading in the project area is low, approximately 3 tons per acre. Ladder fuels are not common or heavy within this project area. Some decay class 4 and 5 coarse woody debris exist in the project area. The brush in the survey area is heavy at times, with some large openings. Salal, vine maple, and sword fern dominate the brush species, with red huckleberry, Oregon-grape, oceanspray, hazel, and dogwood also present.

5.0 ENVIRONMENTAL CONSEQUENCES

This section explains and summarizes the environmental consequences including direct, indirect, short-term, long-term, and cumulative effects of all the alternatives.

Past timber sales implemented under the RMP in the Lake Creek watershed have included Second Wind and the currently active Sammy Hill density management treatments, both located in Late Successional Reserve. Past sales in the General Forest Management Area, included the Ten High Density Management Study and Hult View thinning. GFMA sales planned for fiscal year 2003 and 2004 include this thinning sale, and the Rusty Nel and Rock-Fish timber sales. Future timber sale planning in the watershed will focus on additional thinning in 2005.

This environmental assessment incorporates the analysis of Environmental Consequences, including cumulative effects, in the USDA Forest Service and USDI Bureau of Land Management "Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl," February 1994, (Chapters 3 & 4) and in the Eugene District "Final Proposed Resource

Management Plan/Environmental Impact Statement," November 1994 (Chapter 4). These documents analyze most effects of timber harvest and other related management activities. None of the alternatives in this assessment would have cumulative effects on resources beyond the range of effects analyzed in the above documents. The following section supplements those analyses, providing site-specific information and analysis particular to the alternatives considered here.

5.1 Unaffected Resources

The following resources are either not present or would not be adversely affected by the proposed action or any of the alternatives: Areas of Critical Environmental Concern, prime or unique farm lands, wetlands, floodplains, cultural resources, Native American religious concerns, solid or hazardous wastes, Wild and Scenic Rivers, Wilderness, and low income or minority populations.

Recreation

The affect on recreation would be minimal. There would be some disruption of dispersed activities during the timber sale operation. Visitors engaged in dispersed activities may not be able to use the roads or the project area lands during operations. This would only be a temporary situation.

Visual Resource Management

Under VRM management class IV, the proposed activity would not cause concern. The unit is not near a populated area or major roadway. The tree spacing would be reduced but still within the Class IV definition.

Cultural Resources

Cultural Resources are not expected to be affected by the proposed action or any of the alternatives.

Air Quality

Burning activities, if required, would be consistent with Oregon Smoke Management Regulations. The proposed burning would be of very short duration and would have no local short-term or long-term impacts on air quality. All burning would meet the State Implementation Plan for smoke management and the National Ambient Air Quality Standards set forth in the Clean Air Act. This resource will not be addressed further in this analysis.

5.2 Issue 1: How will timber harvest and roading affect attainment of the Aquatic Conservation Strategy (ACS) Objectives?

The following is a site-specific analysis of the effect of the Proposed Action and alternatives on attainment of the ACS objectives:

Proposed Action - Commercial Thinning – Cable Yarding

Objective 1. The Proposed Action would maintain and contribute to the restoration of the distribution, diversity, and complexity of watershed and landscape-scale features. Treatment of the outer 150 feet of the Riparian Reserves would hasten the development of late-successional characteristics of the residual stand. The thinned stand would retain adequate supplies of future large woody material.

Objective 2. The Proposed Action would maintain the existing spatial and temporal connectivity within and between watersheds. Drainage network connections would be protected with the Riparian Reserves around all streams and other hydrology features. With no new stream crossing of any hydrology feature, the existing physical and chemical routes would be maintained.

Objective 3. The Proposed Action would maintain the physical integrity of the aquatic system. The untreated portions of the Riparian Reserves would ensure that density management would not affect streambank integrity or tree/shrub root strength within the riparian areas. It is unlikely

that management activities within the project area would cause alteration of peak water flows sufficient to affect channel morphology because of the high number of retention trees. Thinning of the outer 150 feet of Riparian Reserves would speed the development of a future supply of large woody debris, which in turn would maintain and contribute to the restoration of the physical complexity of the stream.

Objective 4. The Proposed Action would maintain existing water quality. The action is unlikely to have an impact on stream temperatures because of the reserves around streams. Although some microclimatic changes would be expected in the thinned area, stream shading would not be reduced. In addition, the retention of 70 to 105 tpa in the upland areas would further minimize the change to existing shading conditions. A lack of new stream crossings would preclude direct physical impacts to stream channels.

Objective 5. The Proposed Action would not prevent or retard restoration of the sediment regime under which this aquatic ecosystem evolved. The probability of sediments entering streams from the new spurs and landings would be low due to the distance the new spurs/landings would be from streams (at least 200 feet). Design features, such as outsloping the roads, building to minimum size, blocking and waterbarring, and subsoiling the new roads upon completion of the project (in 1-2 years), would further reduce the potential for erosion and sedimentation. Following the BMP's for yarding would also minimize the potential for sedimentation.

The Riparian Reserves around all streams would provide for filtering of any erosion potentially created from yarding or new roads.

During operations, the use of existing roads for timber haul could produce an increase in sedimentation because some of the existing roads are likely to route sediment flow via ditch lines to cross drains and stream crossings. However, the additional amount of sediment from the project would be expected to be low relative to natural background levels. Haul during wet weather would be on rock surface roads, and minimal disturbance of cut and fill slope vegetation of existing roads would be expected. All haul on natural surface roads would be during dry weather only.

Objective 6. The Proposed Action could contribute to an increase in summer low flows and overall water yield, because of reduction in evapotranspiration and interception due to the removal of some of the trees. The effect would be expected to be minimal because much of the canopy would be retained. New roads would not be expected to extend the length of drainage networks because of their design features. Some compaction would be expected from the proposed yarding and new temporary roads. Effects on the timing and magnitude of peak flows would be expected to be low.

Objective 7. The Proposed Action would maintain the existing timing, variability, and duration of floodplain inundation and water table elevation. Much of the vegetative cover of the project area would be retained.

Objective 8. The Proposed Action would maintain the species composition and structural diversity in riparian areas and would maintain the amount and distribution of coarse woody debris sufficient to sustain the present physical complexity and stability of the riparian areas.

Objective 9. The Proposed Action would maintain the existing habitat of native plant, invertebrate, and vertebrate riparian-dependent species. The untreated portion of the Riparian Reserves would continue to provide habitat for these species.

Alternative 1 - Commercial Thinning - No New Road Construction

Objective 6. Impacts to soil compaction would be less than the Proposed Action and Alternative 2, primarily because fewer acres would be harvested, and no new temporary roads would be constructed or used. All other impacts on ACS objectives would be similar to the Proposed Action.

Alternative 2 - Commercial Thinning - Cable & Ground-Based Yarding with additional Slope/Soil Limits

Objective 6. Since ground based yarding would be allowed, impacts of soil compaction would be greater than the Proposed Action or Alternatives 1 and 3. All other impacts to ACS objectives would be similar to the Proposed Action. Subsoiling of skid trails upon completion of ground based yarding under Alternative 2 would mitigate impacts on the Peavine soils to meet the RMP standards. Effects on the timing and magnitude of peak flows would be expected to be low.

Alternative 3 - No Action

Impacts on ACS objectives 2, 4, and 7-9 would be similar under Alternatives 1 thru 3. This alternative includes no treatment within the Riparian Reserves.

Objective 1. Alternative 3 would have no impact on the distribution, diversity, or complexity of current watershed landscape-scale features. It would not have the added benefit of accelerating the development of larger trees within the Riparian Reserves that would happen with the Proposed Action and Alternatives 1 and 2.

Objective 3, 5. This alternative would have no effects to the physical integrity of the aquatic system or sediment regime.

Objective 6. This alternative would not contribute to an increase in summer low flows and overall water yield. Since no trees would be removed, evapotranspiration and interception would not be reduced. There would be no additional compaction from yarding.

ACS Summary

Based on the above analysis of the effects on attainment of the ACS objectives, the Proposed Action and alternatives are consistent with the ACS and objectives for the Riparian Reserves, would not prevent or retard attainment of any of the ACS objectives, and would enhance attainment of these objectives over the long term. The untreated riparian reserve buffer adjacent to streams would protect streambanks and would contribute to maintaining current water quality and riparian and aquatic function, while allowing treatment to occur within the Riparian Reserves to provide for the long term attainment of ACS objectives. The No Action alternative would not enhance attainment of ACS objectives as it would not hasten development of large conifers in the Riparian Reserve. These stands would continue to develop and mature more slowly without treatment.

5.3 Issue 2: How will timber harvest and roading affect spotted owl dispersal habitat?

Table 2 compares the effects of the alternatives.

Proposed Action - Commercial Thinning – Cable Yarding

By maintaining an average canopy closure greater than 40%, the Proposed Action would degrade but not eliminate the functionality of dispersal habitat within the stand. This action alternative would result in a canopy closure above 40%, maintaining dispersal habitat. Opening the canopy, however, would degrade the existing dispersal habitat quality immediately after harvest, so owls dispersing through the stand would be subject to increased predation and less protection from the elements until the canopy and understory begin to develop. In addition to continuing to function as dispersal habitat, stand diversity would be sufficient to provide temporary habitat and travel corridors for transient owls.

Dispersal habitat on federal lands within the forested portion of the Lake Creek Watershed is currently at 57%. Non-federal lands provide additional habitat for this species, but specific habitat levels on these properties are difficult to ascertain. This action would degrade approximately 0.3% of the dispersal habitat provided by federal lands within the forested portion of the Lake Creek Watershed (36,637 acres).

Dispersal habitat for the spotted owl is of particular importance in this vicinity of the watershed

because it is located north of the South Valley Area of Concern (AOC). This AOC provides an important link between the Coast Range and Cascade Mountains, allowing a genetic flow across the southern Willamette Valley for spotted owls and other species associated with mature forested habitat. It is also an important link between LSRs 267 and 268.

Because of the modification of dispersal habitat, this project would be considered “May Affect, but Not Likely to Adversely Affect” the northern spotted owl.

Alternative 1 - Commercial Thinning - No New Road Construction

Effects to spotted owl dispersal habitat would be similar but somewhat less than the Proposed Action as fewer acres would be thinned. This action would degrade approximately 0.2% of the dispersal habitat provided by federal lands within the forested portion of the Lake Creek Watershed.

Alternative 2 - Commercial Thinning - Cable & Ground-Based Yarding with additional Slope/Soil Limits

Impacts to dispersal habitat would be very similar to the Proposed Action.

Alternative 3 - No Action

The No Action alternative would not modify dispersal habitat for the northern spotted owl either in the upland or Riparian Reserve. These areas would continue to contribute cumulatively to dispersal habitat within the watershed and across the landscape. Within the Riparian Reserve, the long-term development of mature and late-successional forests and their associated benefits to late-successional dependent species would occur slowly through natural disturbances and forest succession. Wildlife species associated with the current habitat conditions would persist under the present stand conditions but would be subjected to changes dependent upon future stand characteristics, disturbances, and future management. Under this alternative, as the stand matures slowly over time, species more associated with later seral stages would be expected to occupy this stand until final harvest.

Wildlife Habitat Summary

Table 2: Comparison of Effects of Alternatives on Dispersal Habitat

Affected Resource	Proposed Action	Alternative 1	Alternative 2	Alternative 3
Spotted Owl Dispersal Habitat within the Forested Portion of the Lake Creek Watershed- Federal Lands	125 acres (0.3%) of dispersal habitat degraded, but still functional	80 acres (0.2%) of dispersal habitat degraded, but still functional	Same as Proposed Action	No habitat affected (0%)

Except for the No Action Alternative, these alternatives would degrade, but not eliminate, dispersal habitat for the spotted owl, and would degrade, but still maintain, habitat for mid-seral species. These alternatives would not result in any negative cumulative effects on these species within the watershed over the long term. From a cumulative perspective, with the implementation of the Northwest Forest Plan, there would be an increase in mature and old growth habitat within the watershed over time as the Late-Successional Reserves and Riparian Reserves continue to mature and develop.

5.4 Issue 3: How will the method of timber harvest, along with proposed mitigations, affect soil productivity? Table 3 summarizes the effects on soils.

Proposed Action - Commercial Thinning - Cable Yarding

This Proposed Action includes planned native surface, temporary road construction and road decommissioning. Site productivity would be temporarily affected along the areal extent of native surface, temporary roads that are built during operations, but effects would be ameliorated. All spur roads and landings would be sub-soiled with added design features after harvest is complete to promote a return of site productivity. Temporary roads would produce temporary soil compaction and a loss of soil productivity. Tilling with a winged subsoiler has been shown to be approximately 80% effective. Cumulative effects on the soil resource would be minimized with the implementation of project design features of the Proposed Action.

From a silvicultural perspective, the use of a cable logging system would have the least impacts to soil productivity, compaction, growth loss and possible damage to tree roots. Little or no mitigation is generally required with cable logging operations.

This alternative would keep timber volume losses lower over the long term than Alternative 2 because no ground based logging would occur. However, temporary roads would be built resulting in a greater loss in soil productivity than Alternative 1 (no new roads) and Alternative 3 (no action).

Alternative 1 - Commercial Thinning - No New Road Construction

Alternative 1 would keep soil compaction and volume losses the lowest of all action alternatives. Among all the action alternatives, site productivity would be least affected by this alternative. There would be no new temporary roads, no ground based logging, and cable yarding only. For silvicultural purposes, the effects of this alternative would be similar to the Proposed Action, except that the amount of thinning area would be reduced by approximately 25%, because no new roads would be constructed.

Alternative 2 - Commercial Thinning - Cable & Ground-Based Yarding with additional Slope/Soil Limits

This alternative would have more effects to soil productivity than the Proposed Action or Alternatives 1 (no new roads) and 3 (no action). Native surface temporary roads would be constructed, but would be closed upon final operation. There are approximately 500 feet more length of temporary road in this alternative as compared to the Proposed Action. Site productivity would be temporarily affected along the areal extent of native surface, temporary roads, but effects would be ameliorated. All spur roads and landings would be sub-soiled with added design features such as blocking, tilling, seeding, mulching, and water barring after harvest is complete to promote a return of site productivity. These temporary roads would produce temporary soil compaction and a loss of soil productivity on approximately .6 acre. Tilling with a winged subsoiler has been shown to be approximately 80% effective.

This alternative would result in more areal extent of soil compaction than the Proposed Action, Alternative 1 (no new roads), and Alternative 3 (no action). This alternative would allow ground-based logging on Peavine soil only. Honeygrove and Cumley are removed from ground-based logging (cable yarding only). Mitigation measures on Peavine soil can lead to a 2% areal extent of soil compaction, to meet RMP standards, with careful administration. Peavine soils are high in clay content and soil moisture restrictions are essential because, once compacted, if the soil is not dry enough, subsoiling is not an effective mitigating measure.

In this alternative, there would be some potential for greater soil displacement and loss in site productivity due to shear and puddling and soil displacement than in Alternative 1, 3, or the Proposed Action. However, ground based logging would not be allowed on slopes over 20% under this alternative. This would prevent deeper cuts into the soil to build skid trails.

For silvicultural concerns, the growth loss effects of this alternative would be somewhat greater than the Proposed Action and Alternative 1 because there would be ground-based equipment used in harvest operations. The effectiveness of mitigation of impacts to Peavine soils would be

expected to be moderate to low in areas of compaction.

Alternative 3 - No Action

No additional soil compaction or soil displacement would occur because no harvesting or new road construction would be conducted in this alternative. No haul would occur on forest roads. By taking no action, soil site productivity and sedimentation from the headwaters would remain at current levels. With no timber haul, downstream impacts to water quality from traffic on forest roads would remain at current levels. This alternative has the least effect on soil productivity among all alternatives considered.

Table 3. Effects comparison between Alternatives.

Effect	Proposed Action	Alternative 1	Alternative 2	Alternative 3
Total Treatment Area (Acres)	125	80	125	0
Peavine Soils Ground based	0	0	27	NA
<i>Total Ground Based (Acres)</i>	<i>0</i>	<i>0</i>	<i>27</i>	<i>NA</i>
Areal Extent of Soil Compaction Peavine soils (Acres)	0	0	0.5	NA
<i>TOTAL Areal extent of Soil Compaction (ROD standard is <2%)</i>	NA	<i>NA</i>	<i>2% or 0.5 acres</i>	<i>Existing skid trails</i>
Percent Loss of area affecting Site Productivity from ground based logging on Peavine soils	NA	NA	100% on 0.5 acres	Current conditions
<i>Percent loss of area affecting Site Productivity from ground based logging</i>	NA	<i>NA</i>	<i>100% on 0.5 acres</i>	<i>NA</i>
Potential Shear, Puddling, Soil Displacement	Low	Low	High	Current conditions
<i>Mitigable</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes/monitoring needed</i>	<i>NA</i>
<i>Temporary Compaction from Roads</i>	<i>0.5 acres</i>	<i>0 acres</i>	<i>0.6 acres</i>	<i>0 acres</i>

- **100% indicates through the next rotation (approximately 60 years) or until mitigated in the case of Peavine soil.**

6.0 CONSULTATION AND COORDINATION

6.1 Project Development

The proposed action and alternatives were developed and analyzed by the following interdisciplinary team of BLM specialists:

NAME	TITLE	DISCIPLINE
Karin Baitis	Soil Scientist	Soils
Mark Stephen	Forest Ecologist	Ecology
Brett Jones	Engineer	Roads/Transportation
Dave Reed	Fuels Specialist	Fuels/Air Quality
Michael Southard	Archaeologist	Cultural Resources
Phil Redlinger	Silviculturist / Timber Planner	Silviculture
Al Corbin	Timber Manager	Timber
Dan Crannell	T & E and Wildlife Biologist	Wildlife Habitat
Leo Poole	Fisheries Biologist	Fisheries
Cheshire Mayrsohn Molly Widmer	Botanist	Botanical Resources
Saundra Miles	Recreation Planner	Visual Resources and Recreation
Gary Hoppe	Landscape Planner	Planning and Environmental Coordination
Graham Armstrong	Forest Hydrologist	Hydrology

6.2 Consultation

The Bureau of Land Management, Coast Range Resource Area consulted with the Confederated Tribes of Siletz, and the Confederated Tribes of Grande Ronde. No response was received.

U.S Fish and Wildlife Service

This proposed action has been addressed in the FY 2003-04 Habitat Modification Biological Opinion which was received by the Eugene District on September 30, 2002. All required mitigation measures included in this Opinion would be followed to ensure compliance with the Endangered Species Act.

Because of the modification of dispersal habitat, this project "May Affect, but is Not Likely to Adversely Affect" the northern spotted owl.

No habitat for the marbled murrelet exists within the harvest unit, but some residual trees with appropriate nesting structure do exist within 0.25 miles north of the project area. Consequently, this action "May Affect and is Likely to Adversely Affect" the marbled murrelet due to disturbance of unsurveyed habitat.

There would be no effect to the bald eagle.

7.0 REFERENCES

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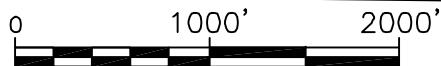
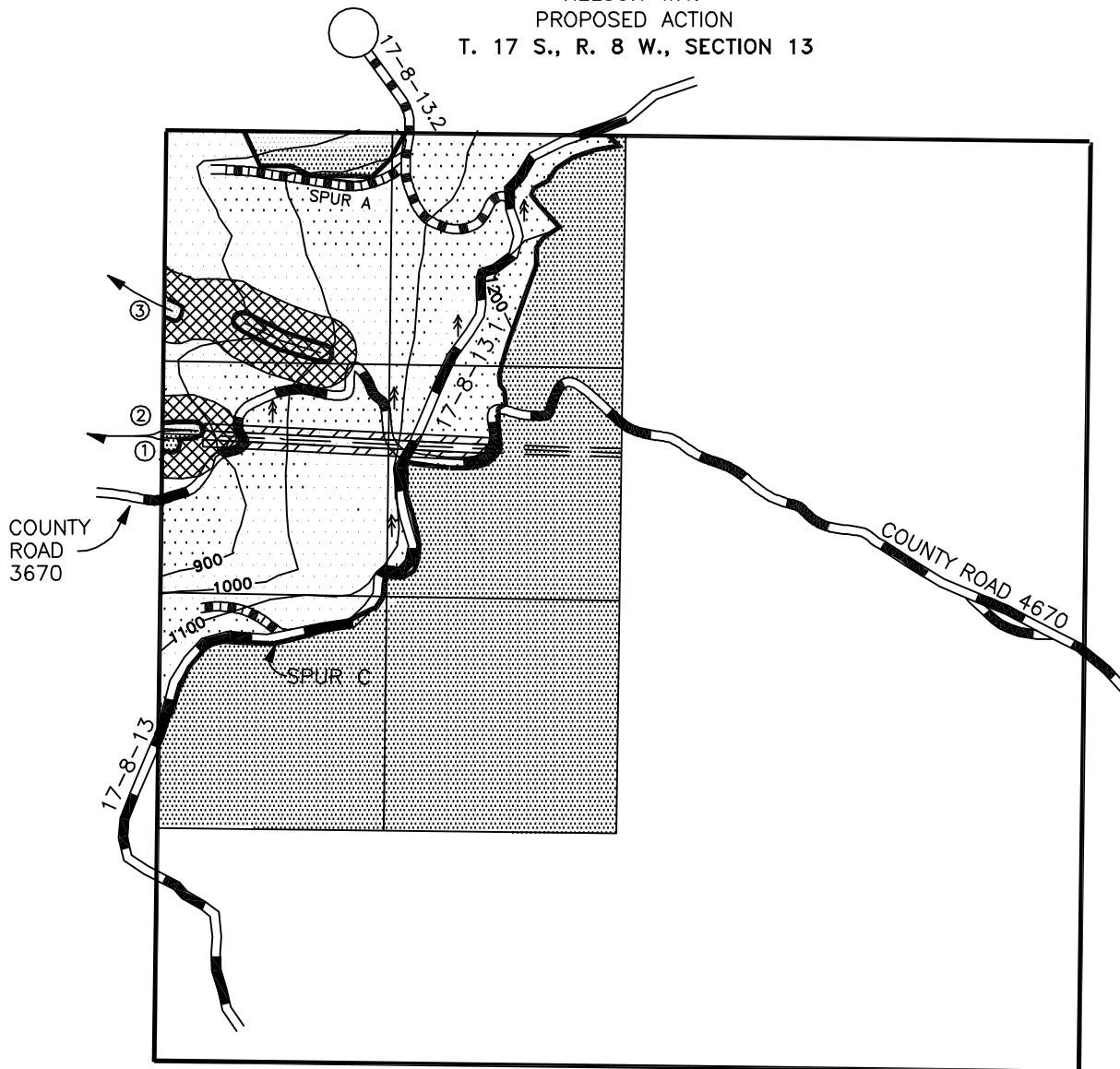
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

Attachments
Maps







UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

NELSON WAY
PROPOSED ACTION
T. 17 S., R. 8 W., SECTION 13



SCALE
LEGEND

-  PARTIAL CUT AREA
-  RESERVE AREA
-  RIPARIAN RESERVE
HARVEST AREA
-  DIRECTIONAL FELLING
AWAY FROM POWERLINE
-  ↑ APPROXIMATE LOCATION
OF PLUS TREE

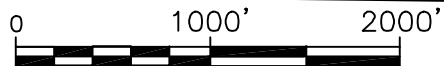
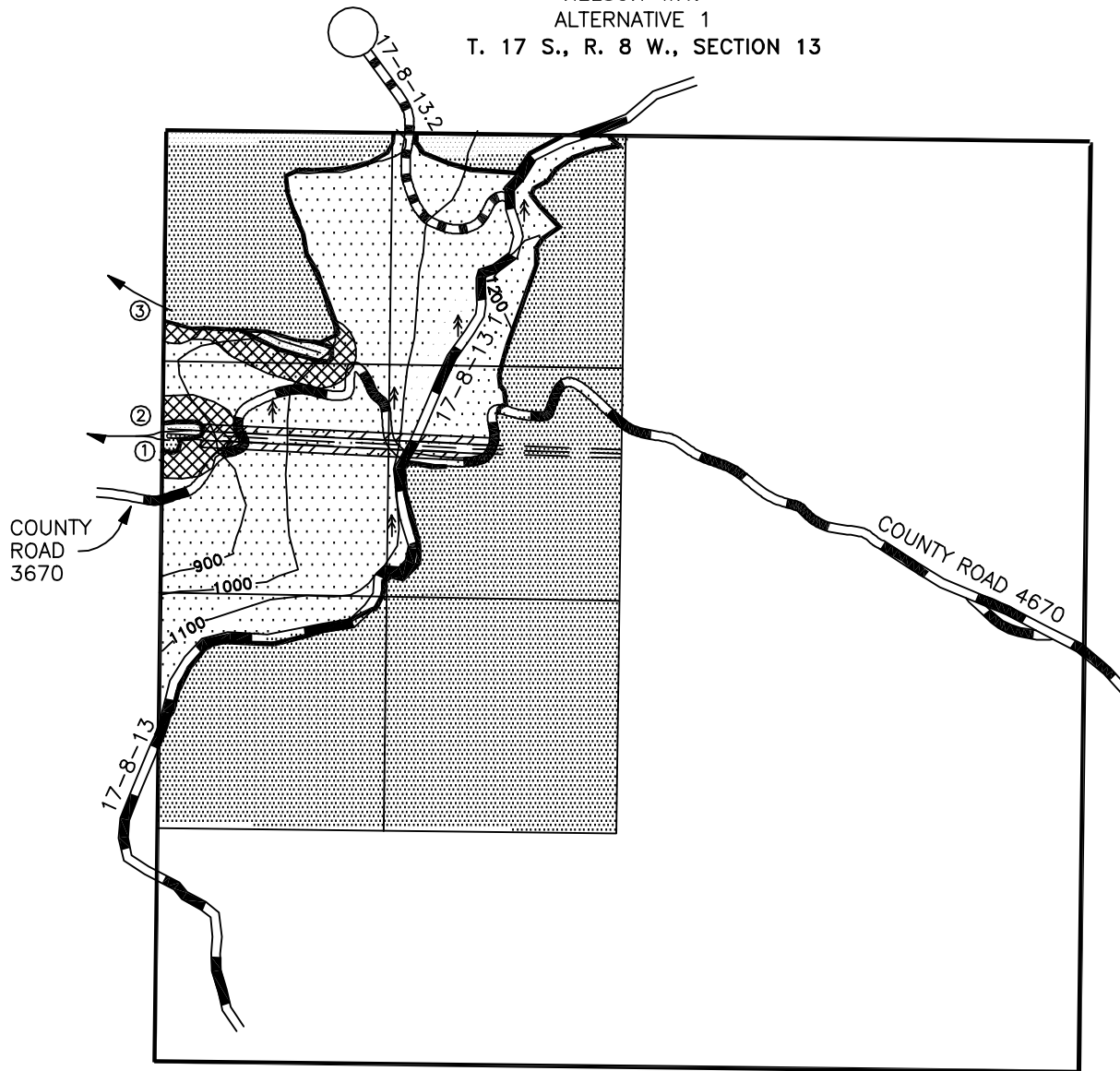
-  ROAD TO BE CONSTRUCTED
-  STATE ROAD TO BE RENOVATED
-  ROCK SURFACED ROAD
-  POWERLINE
-  STREAM
-  TRUCK TURNAROUND

DATE: 4/7/03






UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT






NELSON WAY
ALTERNATIVE 1

T. 17 S., R. 8 W., SECTION 13



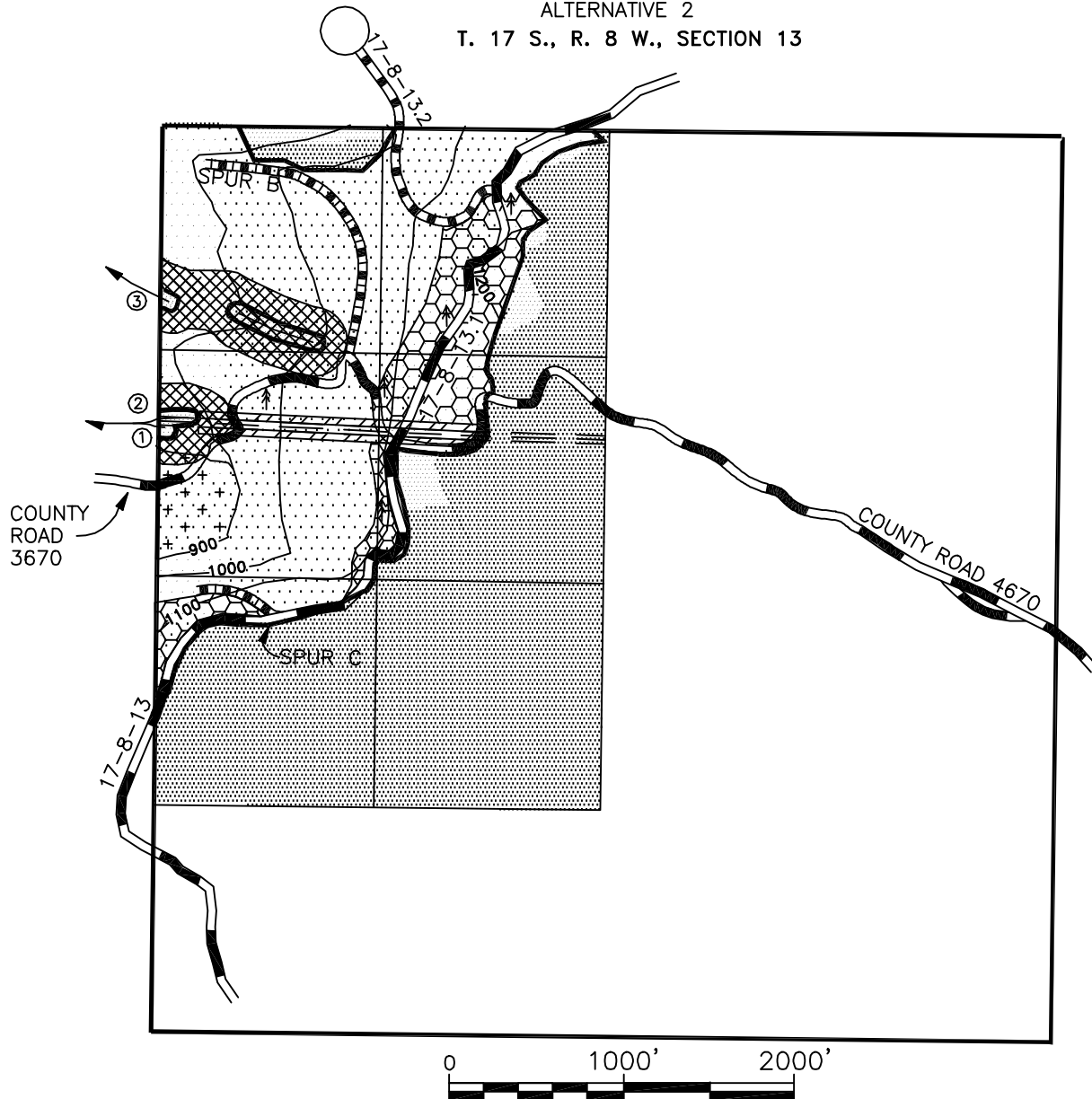
SCALE
LEGEND

-  PARTIAL CUT AREA
-  RESERVE AREA
-  RIPARIAN RESERVE HARVEST AREA
-  DIRECTIONAL FELLING AWAY FROM POWERLINE
-  APPROXIMATE LOCATION OF PLUS TREE

-  STATE ROAD TO BE RENOVATED
-  ROCK SURFACED ROAD
-  POWERLINE
-  STREAM
-  TRUCK TURNAROUND

DATE: 4/7/03

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
NELSON WAY
ALTERNATIVE 2
T. 17 S., R. 8 W., SECTION 13



SCALE
LEGEND

- PARTIAL CUT AREA
- RESERVE AREA
- RIPARIAN RESERVE HARVEST AREA
- DIRECTIONAL FELLING AWAY FROM POWERLINE
- APPROXIMATE LOCATION OF HONEYGROVE SOILS
- APPROXIMATE LOCATION OF CUMLEY SOILS

- ROAD TO BE CONSTRUCTED
- STATE ROAD TO BE RENOVATED
- ROCK SURFACED ROAD
- POWERLINE
- STREAM
- TRUCK TURNAROUND
- APPROXIMATE LOCATION OF PLUS TREE

DATE: 4/7/03

**UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
EUGENE DISTRICT OFFICE**

**Preliminary Finding of No Significant Impact
for
Nelson Way Commercial Thinning
OR O90-EA-03-01**

Determination:

On the basis of the information contained in the Environmental Assessment, and all other information available to me, it is my determination that implementation of the Proposed Action or alternatives will not have significant environmental impacts beyond those already addressed in the Record of Decision (ROD) for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl (April 1994), and the Eugene District Record of Decision and Resource Management Plan (June 1995) as amended by the Record of Decision for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines, USDA Forest Service and USDI Bureau of Land Management (January 2001); with which this EA is in conformance, and does not, in and of itself, constitute a major federal action having a significant effect on the human environment. Therefore, an environmental impact statement or a supplement to the existing environmental impact statement is not necessary and will not be prepared.

Steven Calish
Field Manager, Siuslaw Resource Area

Date

Environmental Assessment No. OR090-EA-03-01

**Nelson Way
Commercial Thinning**

April 2003

**United States
Department of the Interior
Bureau of Land Management
Eugene District Office
Siuslaw Resource Area**